

located in a center of each texel corresponding to the pixels comprised in the quad, and a color values of each texel corresponding to the pixels comprised in the quad.

[0019] The upper mipmap processor may be further configured to obtain the first color values by using a color value of a closest texel from the upper mipmap when each pixel comprised in the quad does not match the corresponding texels of the upper mipmap.

[0020] The mipmap determiner may be further configured to receive information of the pixels comprising the quad and information of a mipmap to which the pixels of the quad are mapped, and to determine the LOD value by using the received information.

[0021] The upper mipmap processor may be further configured to confirm whether the LOD value is same as or greater than a prescribed value, and to obtain the first color values by using bilinear interpolation, based on a coordinate of each pixel of the quad, a center coordinate of each texel of the upper mipmap corresponding to each pixel of the quad, and a color value of each texel of the upper mipmap corresponding to each pixel of the quad, when the confirmed LOD value is same as or greater than the prescribed value.

[0022] The prescribed value may be 0.5.

[0023] The lower mipmap processor may be further configured to obtain the second color values of the pixels of the quad, which are mapped in the lower mipmap by using bilinear interpolation, based on a coordinate of each pixel of the quad, a center coordinate of each texel of the lower mipmap to which each pixel of the quad is mapped, and a color value of each texel of the lower mipmap mapped to each pixel.

[0024] The upper mipmap may include a low-resolution mipmap and the lower mipmap comprises a high-resolution mipmap.

[0025] The lower mipmap may have a width that is two times a width of the upper mipmap and a height that is two times a height of the upper mipmap.

[0026] Other features and aspects will be apparent from the following detailed description, the drawings, and the claims.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0027] FIG. 1 is a configuration diagram of a graphic processor according to an embodiment.

[0028] FIGS. 2 and 3 are views illustrating a relationship between a pixel coordinate and a quad, according to an embodiment.

[0029] FIGS. 4 and 5 are views illustrating an upper mipmap and a lower mipmap according to an embodiment.

[0030] FIG. 6 is a configuration diagram of a texture filtering device according to an embodiment.

[0031] FIGS. 7 and 8 are views illustrating a relationship between a quad and a mipmap according to an embodiment.

[0032] FIG. 9 is a view illustrating a method of texture filtering according to an embodiment.

[0033] FIG. 10 is a view illustrating a method of texture filtering according to an embodiment.

[0034] FIG. 11 is a flowchart illustrating a method of texture filtering according to an embodiment.

[0035] FIG. 12 is a flowchart illustrating a method of texture filtering according to another embodiment.

[0036] FIG. 13 is a view illustrating a method of determining a mipmap by using a level of detail (LOD) value, according to an embodiment.

[0037] FIG. 14 is a view illustrating an example of point filtering with respect to an upper mipmap of a quad according to an embodiment.

[0038] FIG. 15 is a flowchart illustrating a method of texture filtering according to another embodiment.

[0039] FIG. 16 is a view illustrating a method of texture filtering according to an LOD value, according to an embodiment.

#### DETAILED DESCRIPTION

[0040] The following detailed description is provided to assist the reader in gaining a comprehensive understanding of the methods, apparatuses, and/or systems described herein. However, various changes, modifications, and equivalents of the methods, apparatuses, and/or systems described herein will be apparent to one of ordinary skill in the art. The sequences of operations described herein are merely examples, and are not limited to those set forth herein, but may be changed as will be apparent to one of ordinary skill in the art, with the exception of operations necessarily occurring in a certain order. Also, descriptions of functions and constructions that are well known to one of ordinary skill in the art may be omitted for increased clarity and conciseness.

[0041] The features described herein may be embodied in different forms, and are not to be construed as being limited to the examples described herein. Rather, the examples described herein have been provided so that this disclosure will be thorough and complete, and will convey the full scope of the disclosure to one of ordinary skill in the art.

[0042] Reference is now be made in further detail to embodiments, examples of which are illustrated in the accompanying drawings, in which like reference numerals refer to like elements throughout. In this respect, the present embodiments possibly have different forms and are not to be construed as being limited to the descriptions set forth herein. Accordingly, the embodiments are merely described below, by referring to the figures, to explain aspects of various examples.

[0043] Advantages and features of the embodiments and implementation methods of the embodiments are clarified through the following embodiments, described with reference to the accompanying drawings. The embodiments may, however, be embodied in different forms and are not to be construed as being limited to the embodiments set forth herein. Rather, these embodiments are provided so that this disclosure is thorough and complete, and fully conveys the scope of the embodiments to those skilled in the art.

[0044] Terms used in the present specification are briefly described, and the present embodiments are described in further detail.

[0045] General and widely used terms are employed throughout, in consideration of functions provided in the embodiments, and potentially vary appropriately according to an intention of one of ordinary skill in the art, a precedent, or emergence of new technologies. Additionally, in some cases, specific terms may be selected, in which case, these specific terms are defined in order to provide the intended meaning of the terms as used in the description of the embodiments. Accordingly, it is to be understood that the terms used herein are to be interpreted as having a meaning that is consistent with their meaning in the context of the relevant art and are not to be interpreted in an idealized or overly formal sense unless expressly so defined.